Docket No.: 13173-00025-US

(PATENT)

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of: Ralf Flachmann et al

Application No.: National Phase of

PCT/EP2004/008623

Filed: Concurrently Herewith

METHOD FOR PRODUCING For:

KETOCAROTENOIDS IN GENETICALLY MODIFIED, NON-HUMAN ORGANISMS

Art Unit: N/A

Confirmation No · N/A

Examiner: Not Yet Assigned

## INFORMATION DISCLOSURE STATEMENT (IDS)

Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

Dear Sir

Pursuant to 37 CFR 1.56, 1.97 and 1.98, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached PTO/SB/08. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

This Information Disclosure Statement accompanies the new patent application submitted herewith

Of the documents listed on the attached SB/08 are the documents cited in the International Search Report during the prosecution of international application no. PCT/EP2004/008623, which corresponds to the above referenced application. In accordance with 37 CFR 1.97(b)(2), Applicants hereby submit these documents for the Examiner's consideration. A copy of each document required under 37 CFR 1.98(a)(2) is enclosed.

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In accordance with 37 CFR 1.97(g), the filing of this Information Disclosure Statement shall not be construed to mean that a search has been made or that no other material information as defined in 37 CFR 1.56(a) exists. In accordance with 37 CFR 1.97(h), the filing of this Information Disclosure Statement shall not be construed to be an admission that any patent, publication or other information referred to therein is "prior art" for this invention unless specifically designated as such. Moreover, Applicants understand the Examiner will make an independent evaluation of the cited documents.

Applicants believe no fee is due. However, if a fee is due, the Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 03-2775, under Order No. 13173-00025-US, from which the undersigned is authorized to draw.

Respectfully submitted,

Roberte M. D. Makowski, Ph.D.

Registration No.: 55,421

CONNOLLY BOVE LODGE & HUTZ LLP 1007 North Orange Street

P.O. Box 2207

Wilmington, Delaware 19899 (302) 658-9141

(302) 658-5614 (Fax) Attorney for Applicants

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## PTO/SB/08a/b (07-05) Approved for use through 07/31/2006. OMB 0651-0031 U.S. Palent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

| Substitut              | e for form 1449A | /В/РТО        |           |                        | Complete if Known     |  |  |
|------------------------|------------------|---------------|-----------|------------------------|-----------------------|--|--|
|                        |                  |               |           | Application Number     | Not Yet Assigned      |  |  |
| INF                    | ORMATI           | ON DIS        | CLOSURE   | Filing Date            | Concurrently Herewith |  |  |
| STATEMENT BY APPLICANT |                  |               |           | First Named Inventor   | Ralf Flachmann        |  |  |
|                        |                  |               |           | Art Unit               | N/A                   |  |  |
|                        | (Use as man      | y sheets as n | ecessary) | Examiner Name          | Not Yet Assigned      |  |  |
| Sheet                  | 1                | of            | 2         | Attorney Docket Number | 13173-00025-US        |  |  |

| U.S. PATENT DOCUMENTS |              |   |                                |  |   |  |  |  |
|-----------------------|--------------|---|--------------------------------|--|---|--|--|--|
| Examiner<br>Initials* | Cite<br>No.¹ | Document Number  Number-Kind Code <sup>2</sup> (#known) | Publication Date<br>MM-DD-YYYY | Name of Patentee or<br>Applicant of Cited Document | Pages, Columns, Lines, Where<br>Relevant Passages or Relevant<br>Figures Appear |  |  |  |
|                       |              |   |                                |  |   |  |  |  |

|                       | FOREIGN PATENT DOCUMENTS |   |                                   |   |  |              |  |  |  |
|-----------------------|--------------------------|---|-----------------------------------|---|--|--------------|--|--|--|
| Examiner<br>Initials* | Cite<br>No.1             | Foreign Patient Document  Country Code <sup>3</sup> -Number <sup>4</sup> - Kind Code <sup>6</sup> (# known) | Publication<br>Date<br>MM-DD-YYYY | Name of Patentee or<br>Applicant of Cited Document                                  | Pages,<br>Columns, Lines,<br>Where Relevant<br>Passages or<br>Relevant Figures<br>Appear | τ°           |  |  |  |
|                       | BA                       | EP-0 725 137-A1   | 08-07-1996                        | Kirin Beer Kabushiki Kaisha   | Appear   |              |  |  |  |
|                       | BB                       | WO-98/18910-A1  | 05-07-1998                        | Yissum Research and<br>Development Company of the<br>Hebrew University of Jerusalem |  |              |  |  |  |
|                       | BC                       | WO-01/20011-A1  | 03-22-2001                        | Astacarotene AB   |  |              |  |  |  |
|                       | BD                       | WO-02/079395-A2   | 10-10-2002                        | Cargill Incorporated  |  |              |  |  |  |
|                       | BE                       | DE-102 38 980-A1  | 03-04-2004                        | 004 SunGene GmbH & Co. KGaA See At  |  | See Attached |  |  |  |
|                       | BF                       | DE-102 53 112-A1  | 06-03-2004                        | 1004 SunGene GmbH & Co. KGaA See Al   |  | See Attached |  |  |  |
|                       | BG                       | DE-102 58 971-A1  | 07-01-2004                        | 004 SunGene GmbH & Co. KGaA See Att   |  | See Attached |  |  |  |
|                       | ВН                       | DE-103 00 649-A1  | 07-22-2004                        | BASF AG   |  | See Attached |  |  |  |

"EXAMINE: Initial if reference considered, whether or not disalon is no continuence with NEPP etc.). Draw the through citizen if not no continuence and not considered. Include only of the form with not communication in application, application number deployed. "Seek Intelligible of the property of the form with not not communication and application." Seek Intelligible of the USPTO Patent Documents at the document, and the seek Intelligible of the Seek Intelligible of

|                      |              | NON PATENT LITERATURE DOCUMENTS   |   |
|----------------------|--------------|---|---|
| Examiner<br>Initials | Cite<br>No.1 | Include name of the author (in CAPITAL LETTERS), tille of the article (when appropriate), title of the item (book, megazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.   | T |
|                      | CA           | Ronen, Gil, et al., "An Alternative Pathway to β-carotene Formation in Plant Chromoplasts<br>Discovered by Map-based Cloning of Befa and Old-gold Color Mutations in Tomato",<br>Proceedings of National Academy of Science of the United States of America, Vol. 97, No. 20<br>(2000), pp. 1102-11107. |   |
|                      | СВ           | Ronen, G., et al., "Lycopersicon esculentum chromoplast-specific lycopene beta-cyclase mRNA, complete cds.", Database EMBL-EBI, Accession No. AF254793, October 9, 2000.  |   |
|                      | СС           | Lotan, Tamar, et al., "Cloning and Expression in Escherichia coli of the Gene Encoding β-C-4-<br>oxygenase, That Converts β-carolene to the Ketocarotenoid Canthaxanthin in Haematococcus<br>pluvialis", FEBS Letters, Vol. 384 (1995), pp. 125-128   |   |
|                      | CD           | Harker, Mark et al., "Biosynthesis of Ketocarotenoids in Transgenic Cyanobacteria Expressing the Algal Gene for β-C-4-oxygenase, crt0", FEBS Letters, Vol. 404 (1997), pp. 129-134.   |   |
|                      | CE           | Krubasik, P., et al., "Molecular Evolution of Lycopene Cyclases Involved in the Formation of Carotenoids with Inonne End Groups", Biochemical Society Transactions, Vol. 28, Part 6 ((2000), pp. 806-810.   |   |

|  | Examiner<br>Signature | /Russell Kallis/ | Date 07/29/2008<br>Considered |
|--|-----------------------|------------------|-------------------------------|
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## W712 Rac'd PO7/FTG 17 FEB 2006

PTO/SB/08a/b (07-05)
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| Subs                              | titute for form 1449A/B/P | го   |            | Complete If Known      |                       |  |
|-----------------------------------|---------------------------|------|------------|------------------------|-----------------------|--|
|                                   |                           |      |            | Application Number     | Not Yet Assigned      |  |
| IN                                | FORMATIO                  | N DI | SCLOSURE   | Filing Date            | Concurrently Herewith |  |
| STATEMENT BY APPLICANT            |                           |      |            | First Named Invantor   | Ralf Flachmann        |  |
|                                   |                           |      |            | Art Unit               | N/A                   |  |
| (Use as many sheets as necessary) |                           |      | necessary) | Examiner Name          | Not Yet Assigned      |  |
| Sheet                             | 2                         | of   | 2          | Attorney Docket Number | 13173-00025-US        |  |

|   | CF | Kajiwara, Susumu, et al., "Isolation and Functional Identification of a Novel cDNA for     |   |
|---|----|--|---|
| ı |    | Astaxanthin Biosynthesis from Haematococcus pluvialis, and Astaxanthin Synthesis in        |   |
|   |    | Escherichia coli <sup>a</sup> , Plant Molecular Biology, Vol. 29 (1995), pp. 343-352.      |   |
|   | CG | Kaneko, Takakazu, et al., "Complete Genomic Sequence of the Filamentous Nitrogen-fixing    | _ |
| L |    | Cyanobacterium Anabaena sp. Strain PCC 7120", DNA Research, Vol. 8 (2001), pp. 205-213.    |   |
|   | CH | Mann, Varda, et al., "Metabolic Engineering of Astaxanthin Production in Tobacco Flowers", |   |
|   |    | Nature Biotechnology, Vol. 18 (2000), pp. 888-892.   |   |

<sup>1</sup>Applicant's unique citation designation number (optional). <sup>2</sup>Applicant is to place a check mark here if English language Translation is attached.

| Examiner  | /Russell Kallis/ | Date       |            |
|-----------|------------------|------------|------------|
| Signature |                  | Considered | 07/29/2008 |